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Results of the Puritan-American Museum of Natural History Expedition to Western Mexico
3. The Terrestrial Mollusks

By Morris K. Jacobson

INTRODUCTION

In the course of the Puritan-American Museum of Natural History Expedition to western Mexico, 14 species of land shells were collected on the mainland of Baja California and on some of the nearby islands in the Pacific Ocean and in the Gulf of California (see Emerson, 1958, for the General Account of the expedition). Some of the shells were taken by Dr. Richard G. Zweifel while he was making herpetological collections. The rest were collected by Dr. William K. Emerson, who, however, devoted most of his time to the collection of marine invertebrates. It is surprising that such incidental collecting in an area not by any means conchologically unknown succeeded in procuring the rather spectacular new species described below. This indicates that intensified collecting, especially in the mountains in the southern part of Baja California, would prove to be rewarding.

The writer is most grateful to Dr. William K. Emerson for affording him the opportunity of working up this very interesting collection and for giving him bibliographic assistance. The late Dr. Henry A. Pilsbry gave the writer very helpful suggestions and aided in the identification of some of the species. Drs. R. Tucker Abbott and Harald A. Rehder kindly provided critical specimens for examinations.

The bibliographic synonymies of the species are not complete, but are confined to the more important references and citations to figures.

Date references to Pfeiffer in the "Conchylien-Cabinet" follow Smith and England (1937, pp. 91–92).

SPECIES COLLECTED

FAMILY HELMINTHOGLYPTIDAE

SUBFAMILY HELMINTHOGLYPTINAE

Micrarionta stearnsiana (Gabb)

Helix stearnsiana GABB, 1868, Amer. Jour. Conchol., vol. 3, p. 235, pl. 16, fig. 1. Under stumps of maguey from Santo Tomás to a little beyond Rosario.

Micrarionta (Xerarionta) stearnsiana (Gabb), S. S. BERRY, 1928, Jour. Ent. Zool., Pomona College, vol. 20, p. 75, pl. 2, figs. 1–9. From La Jolla, California, to Rosario.

Micrarionta (Plesarionta) stearnsiana (Gabb), PILSBRY, 1939, Monogr. 3, Acad. Nat. Sci. Philadelphia, vol. 1, p. 212, fig. 107, a–f. From Point Loma, California, to coastal islands south to beyond Rosario.

RECORDS: South Todos Santos Island, off Ensenada, Baja California; two not completely mature individuals.

This species is well known from the Todos Santos Islands.

Pilsbry (1939, p. 212) separated the subgenus *Plesarionta* from *Xerarionta* anatomically. On conchological grounds this separation rests on the fact that the "radial striae of the embryonic whorls are waved." As many of the lots collected by the expedition consisted of dead shells with the whorls badly eroded, it was not always possible to place the species discussed in this paper in their correct subgenus, and hence it was decided to omit subgeneric assignments entirely.

Micrarionta canescens (Adams and Reeve)

Helix canescens ADAMS AND REEVE, 1848, Mollusca, *in* Adams, The zoology of the voyage of H.M.S. Samarang, p. 62, pl. 16, fig. 10 [2 figs.]. "Africa."

Micrarionta veatchii canescens (Adams and Reeve), PILSBRY, 1913, Proc. Acad. Nat. Sci. Philadelphia, vol. 65, p. 386, text fig. 1. South Bay, Cerros Island.

Micrarionta canescens (Adams and Reeve), PILSBRY, 1927, Proc. California Acad. Sci., ser. 4, vol. 16, p. 178, pl. 11, figs. 6–10. Cedros Island, west side near the Red Rocks; also Bernstein's Spring [Cedros Island] at about 2000 feet elevation on desert plants; Natividad Island on the north side below first giant cactus; on the mainland at Turtle Bay [Baja California], south side, and north side of same bay.

RECORD: South Bay, Cedros Island; eight specimens.

The present specimens compare favorably with the figures in Pilsbry (1913, p. 387). They are less ornamented than specimens from Red Rocks on the west side of the island (Pilsbry, 1927, pl. 11, figs. 8–10); only one specimen shows any bands.

Cerros Island is an older name for Cedros Island. Pilsbry (1913, p. 387) points out that "the *Samarang* touched Africa only at the cape where no such species as *H. canescens* is found." As that expedition also visited Cedros Island, it is likely that the species was first taken there, and that the labels were confused.

Micrarionta canescens veatchii ("Newcomb" Tryon)

Arionta veitchii (*sic*) Newcomb, TRYON, 1866, Amer. Jour. Conchol., vol. 2, p. 316, pl. (22) 5, fig. 19. Cedros Island, Baja California.

Micrarionta veatchii ("Newc." Tryon), PILSBRY, 1913, Proc. Acad. Nat. Sci. Philadelphia, vol. 65, p. 384, pl. 15, figs. 1–7. Cedros Island.

Micrarionta canescens veatchii ("Newc." Tryon), PILSBRY, 1927, Proc. California Acad. Sci., ser. 4, vol. 16, p. 178, pl. 11, figs. 11–15. Cedros Island: north end near the old mine; "Grand Canyon," near center of east side of island; Bernstein's Camp; South Bay.

RECORD: One mile east and 4 miles south of North Point, Cedros Island, on east side; 27 specimens, two alive.

This is a rather uniform lot of large, elevated, and variously banded shells. Only a few are relatively depressed. The color in the bands is vivid and solid only in the specimens taken alive, the bands in the dead shells being represented by faint pellucid areas where the original color has disappeared. The lips of mature specimens are only a little less broadly reflected than in the variety *leucanthea* Dall. Mature specimens, judging by the reflected lip, have six plus whorls.

Pilsbry (1913, p. 386) points out that the species was named in honor of John A. Veatch, whose name was unaccountably misspelled in the original description.

Micrarionta canescens veatchii forma *leucanthea* Dall

Epiphragmophora leucanthea DALL, 1900, Proc. Acad. Nat. Sci. Philadelphia, vol. 52, p. 99, pl. 8, figs. 18, 20. Eastern side of Cerros Island.

Micrarionta veatchii leucanthea Dall, PILSBRY, 1913, Proc. Acad. Nat. Sci. Philadelphia, vol. 65, p. 385, pl. 15, fig. 10.

Micrarionta canescens veatchii var. *leucanthea*, PILSBRY, 1927, Proc. California Acad. Sci., ser. 4, vol. 16, p. 179, pl. 11, figs. 11–13. Bernstein's Camp [Cedros Island].

RECORD: About 1 mile south of cannery on the southeast side, Cedros Island; 19 specimens, seven alive.

This lot consists mainly of depressed shells, unbanded on a pinkish base color. The lips are variously widely reflected. However, as enough shells show bands or signs of bands, and two specimens are indistinguishable from the subspecies *veatchii*, it is perhaps more than generous to give the *leucanthea* form a varietal name. All that can be said

to justify the naming of this form is that this lot as a whole is different from the previous lot, although individual specimens from one can be matched with specimens from the other. Dall's "variety" appears to be limited to populations occurring on the eastern end of the island.

Micrarionta pandorae (Forbes)

Helix pandorae FORBES, 1850, Proc. Zool. Soc. London, p. 55, pl. 9, figs. 3a, b. Straits of Juan del Fuaco [*sic*].

Helix pandorae Forbes, PFEIFFER, 1854, Systematisches Conchylien-Cabinet, vol. 1, pt. 12, p. 467, pl. 156, figs. 17, 18.

Epiphragmophora pandorae bonitosensis Pilsbry, PILSBRY AND VANATTA, 1898, Proc. Acad. Nat. Sci. Philadelphia, vol. 50, p. 70, figs. 4, 5 (genitalia).

Epiphragmophora pandorae (Forbes), DALL, 1900, Proc. Acad. Nat. Sci. Philadelphia, vol. 52, p. 101. San Benito Island, Santa Barbara on Margarita Bay.

Micrarionta pandorae (Forbes), PILSBRY, 1913, Proc. Acad. Nat. Sci. Philadelphia, vol. 65, p. 382, pl. 15, figs. 17–23. Type locality, "Los Benitos."

Micrarionta pandorae (Forbes), PILSBRY, 1927, Proc. California Acad. Sci., ser. 4, vol. 16, p. 179, pl. 10, figs. 1–16. East Bonito Island; West Bonito Island, living in abundance in the rock slides, on the north side, northeast point, and south side.

RECORD: San Benito Island, west island; three immature, live specimens.

Pilsbry (1913) rejects Forbes's locality of Strait of Juan de Fuca in Washington and selects San Benito Island as the type locality. One of the three present specimens has the typical coloring mentioned by Pilsbry (1913, p. 383), "Dull purplish above and banded below the periphery on a creamy ground, the apex purple or reddish." A second specimen is brownish above the periphery, banded below. The third is slate-colored to brown above, unbanded, but with a few scattered spots below the periphery.

Micrarionta levis (Pfeiffer)

Helix levis PFEIFFER, 1845, Zeitschr. f. Malakozool., vol. 2, p. 152. California.

Helix levis PFEIFFER, 1852, Systematisches Conchylien-Cabinet, vol. 1, pt. 12, p. 249, pl. 36, fig. 17 (type, *fide* Pilsbry, 1913), fig. 16 var. (*fide* Pilsbry, 1913). "Columbia River, California."

Micrarionta levis (Pfeiffer), PILSBRY, 1913, Proc. Acad. Nat. Sci. Philadelphia, vol. 65, p. 387, pl. 16, figs. 42–45, 51–52.

Micrarionta levis (Pfr.), PILSBRY, 1927, Proc. California Acad. Sci. ser. 4, vol. 14, p. 179. Turtle Bay, Baja California, south side; north side of same; Asuncion Island.

RECORD: Turtle Bay, Baja California; 19 mature specimens, seven immature.

The specimens in this lot are quite typical as to size, coloration, and form. The columellar tooth is present in only two specimens. The immature shells are rather strongly carinate. Some of the specimens superficially resemble *Theba pisana* (Müller), but the more globose shape and the strong reflection of the columellar lip at the axis serve to distinguish them. Pilsbry (1913, p. 388) selected Port San Bartolomé, another name for Turtle Bay, as the type locality.

Micrarionta areolata (Pfeiffer)

Helix areolata Sowb. MS, PFEIFFER, 1845, Zeitschr. f. Malakozool., vol. 2, p. 154.

Helix areolata PFEIFFER, 1852, Systematisches Conchylien-Cabinet, vol. 1, pt. 12, p. 248, pl. 36, figs. 10–13. "Columbia River in California."

Epiphragmophora areolata (Sowerby), DALL, 1900, Proc. Acad. Nat. Sci. Philadelphia, vol. 52, p. 100.

Micrarionta areolata ("Sowb." Pfr.), PILSBRY, 1913, Proc. Acad. Nat. Sci. Philadelphia, vol. 65, p. 390, figs. 2a, b, c, pl. 16, figs. 25–33.

Micrarionta areolata (Pfeiffer), PILSBRY, 1927, Proc. California Acad. Sci., ser. 4, vol. 16, p. 180, pl. 6, fig. 10, pl. 9, figs. 1, 1a, 1b, pl. 11, figs. 1–5. Magdalena Island near the village of Magdalena Bay [type locality, *fide* Pilsbry (1913, p. 391)]; ocean beach, Magdalena Bay; Margarita Island, southern division.

RECORD: Santa Magdalena Island, north of village; four specimens.

Of the four specimens, three resemble very closely the illustration of the type in the "Conchylien-Cabinet" (copied by Pilsbry, 1913, p. 390, figs. 2a, b, c) and thus serve to verify Pilsbry's selection of Magdalena Island as the type locality. The fourth specimen has the lines much more numerous and widely broken at irregular intervals, the sections of the lines almost merging vertically to form apparent axial streaks. Pilsbry's (1913, pl. 16) figure 25 from "Magdalena Bay" closely resembles this specimen.

FAMILY POLYGYRIDAE

SUBFAMILY POLYGYRINAE

Polygyra richardsoni Martens

Polygyra richardsoni MARTENS, 1892, Biologia Centrali-Americana, p. 168, pl. 7, figs. 9, 9a–c. Presidio de Mazatlan, State of Sinaloa.

Polygyra richardsoni form *paucicostata* (as of Pilsbry) DALL, 1926, Proc. California Acad. Sci., ser. 4, vol. 15, p. 476, pl. 36, figs. 3–5. María Madre, María Magdalena.

Polygyra paucicostata "Pilsbry" Dall, PILSBRY, 1931, Nautilus, vol. 44, p. 81. María Madre, Tres Marías.

Polygyra richardsoni Martens, PILSBRY, 1956, Proc. Acad. Nat. Sci. Philadelphia, vol. 108, p. 24. Sinaloa, around Mazatlan; Nayarit, at Ruiz; María Madre, Tres Marías.

RECORD: Arroyo Hondo, María Madre Island, Tres Marías Islands; one live specimen.

The specimen was taken under a damp log in Arroyo Hondo. The status of the form *paucicostata* is discussed by Pilsbry (1931, 1956).

FAMILY BULIMULIDAE

SUBFAMILY BULIMULINAE

Bulimulus (Leptobyrsus) ximenez Hanna

Bulimulus ximenez HANNA, 1923, Proc. California Acad. Sci., ser. 4, vol. 12, p. 497, pl. 8, figs. 4–9. Marquer Bay, Carmen Island.

Bulimulus carmen PILSBRY AND LOWE, 1932, Nautilus, vol. 46, p. 50 (not pl. 5, fig. 2). Salinas Bay, Carmen Island.

Bulimulus carmen Pilsbry and Lowe, PILSBRY, 1935, Proc. Acad. Nat. Sci. Philadelphia, p. 2, pl. 1, fig. 7.

RECORD: Marquer Bay, Carmen Island, in an arroyo just to the east of the bay; 15 mature but dead specimens.

This lot contains three specimens which, because of the internal columellar callus "square in shape, slightly emarginate or sinuous on its outer edge" (Hanna, 1923), can without any hesitation be assigned to typical *ximenez*. The other 12 specimens have this callus developed to varying degrees, usually very slightly raised or "much weaker" as in *carmen* (Pilsbry and Lowe, 1932), and in others it is quite obsolete. The form *carmen* is also said to differ in having the shell less solid and the outline rather stout. But shells of the subgenus *Leptobyrsus* vary greatly in these respects, and one of the typical *ximenez* in the present lot has a shell much more slender than many of the specimens referable to the *carmen* forms. Apparently *ximenez* varies in the strength of the internal callus, and *carmen* is merely the stage in which this callus has become much weakened.

The subgenus *Sonorina* was proposed by Pilsbry to replace *Leptobyrsus* because of its supposed homonymy with an earlier *Leptobyrsa*, but modern concepts of nomenclature do not consider the latter two names homonyms.

Bulimulus (Orthotomium) santacruzensis Hanna

Bulimulus santacruzensis HANNA, 1923, Proc. California Acad. Sci., ser. 4, vol. 12, p. 487, pl. 7, figs. 12–15. Santa Cruz Island, Gulf of California.

RECORD: Santa Cruz Island, southwest side; one mature dead specimen.

The shell of this species so much resembles that of various species of the subgenus *Leptobyrsus*, and is so unlike that of *B. sufflatus* (Gould), the genotype of *Orthotomium*, that one is strongly tempted to leave it

in the former genus. However, the complete lack of any internal columellar callus excludes it from *Leptobyrsus*. Perhaps a new subgenus should be erected for shells of the general appearance of *Leptobyrsus* but lacking this internal structure. We hesitate to do this on the basis of the material available for study.

PURITANINA, NEW SUBGENUS

Shell medium to large, ovate or oblong conic, deeply rimate, moderately thick, peristome more or less expanded, sometimes reflected. The surface is closely granulose, this sculpture generally visible to the naked eye.

TYPE: *Bulimulus montezuma* Dall, 1893.

This subgenus covers the description given for the "group of *montezuma*" as defined by Pilsbry (1897, p. 127): "Lip expanded, surface generally granulate." However, examination of specimens in the United States National Museum shows that some of the species placed in this group by Pilsbry are entirely lacking in this type of sculpture. Thus *excelsus* Gould, *pallidior* Sowerby (but not *pallidior striatulus* Dall, which has this sculpture very faintly developed), and *baileyi* Dall are quite smooth and hence are excluded from the new subgenus. The subspecies *striatulus* Dall may perhaps be best regarded as a full species, as was suggested by Hanna (1923, p. 487), and be placed under the name *B. (Puritanina) striatulus*, the nominate species then being classed with the smooth, internally unarmed forms, such as *santacruzensis* Hanna.

The name of the new subgenus commemorates the expedition's schooner, the "Puritan."

Bulimulus (Puritanina) harribaueri, new species

Figures 1, 2

DIAGNOSIS: A bulimulid of the group *montezuma* Dall, having six or seven whorls and a distinctive granular sculpture, decidedly finer than in the other species of the group.

DESCRIPTION OF HOLOTYPE: The deeply rimate, ovate-conic shell is white (periostracum?), moderately thick. Whorls slightly more than seven, rapidly increasing, the whorls of the spire doubling successively in width. Nuclear whorls regularly axially costulate; the post-nuclear whorls with fine, closely set, irregular, retractive growth lines. The body whorl large, swollen, greater in height than the spire, roundly expanded below, ascending slightly at the aperture. The last two and one-half whorls thickly covered with very numerous, closely set, irregu-

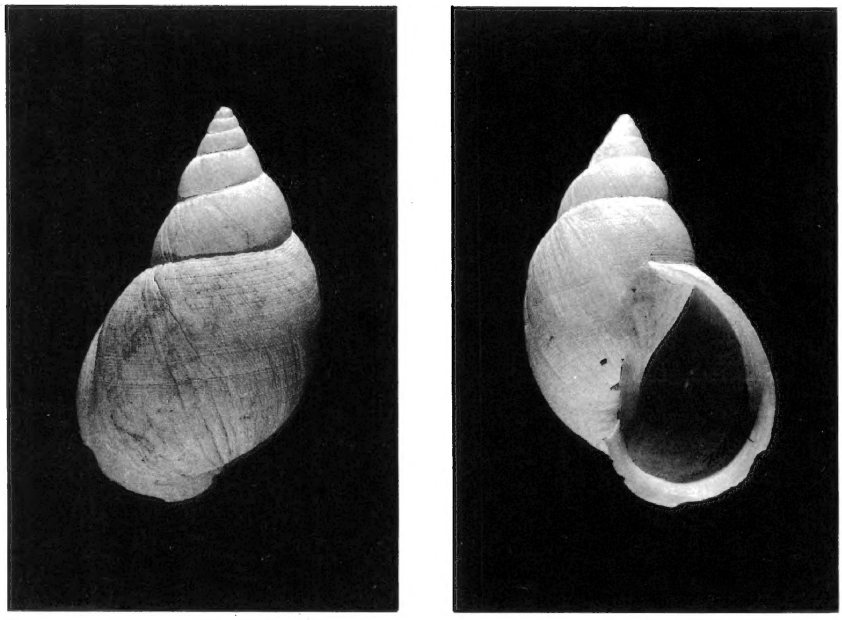

FIG. 1. Holotype of *Bulimulus (Puritanina) harribaueri*, new species (A.M.N.H. 74003). *Left:* Dorsal view. *Right:* Apertural view. × 1.

larly shaped, flattened, tiny granules which are arranged in spiral series. This arrangement gives the impression that the body whorl, when viewed with the naked eye, is covered by numerous incised spiral lines. The granules on the latter portion of the pre-penult whorl are finer, smaller, and more flattened. This ornamentation appears on the base but is obsolescent or obsolete on the parietal wall at the umbilical chink. The sutures are moderately impressed, weakly serrulate.

Aperture ovate, more than half of the height of the shell. Basal lip well expanded, not reflected, widely dilated at the columella. Outer lip rapidly narrowing above, until it is just barely expanded at the aperture.

MEASUREMENTS: Shell height, 53.4 mm., diameter, 33.4 mm.; aperture height, 25.6 mm., diameter, 16.0 mm.

TYPE LOCALITY: Fraile Bay, Baja California, dead on sand dunes and decomposed granite; W. K. Emerson collector; April 19, 1957.

TYPE DEPOSITORY: Holotype (A.M.N.H. 74003), four paratypes (A.M.N.H. 74004).

DISCUSSION: The new species is one of a group of rather large bulimulids known from the southern portion of the peninsula. It is most closely allied to *montezuma*, from which it differs in the larger number

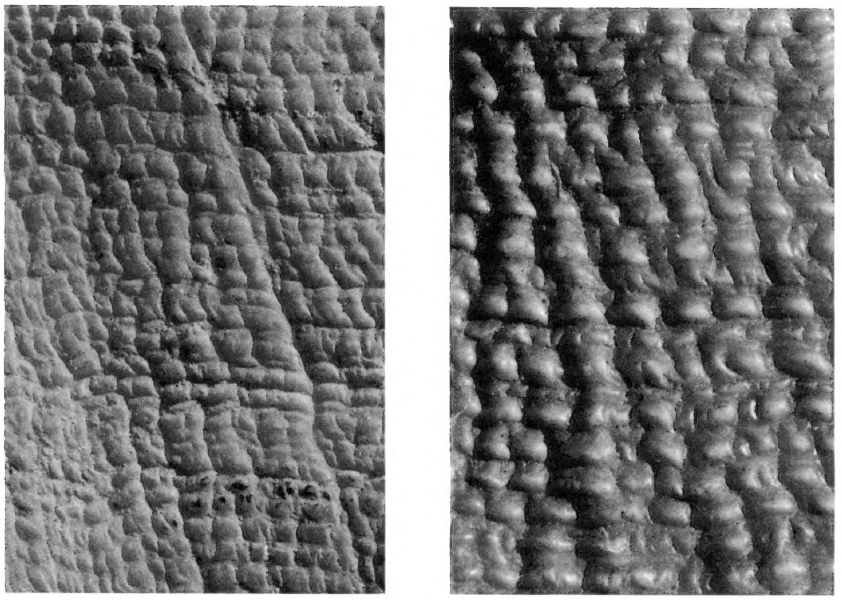

FIG. 2. Detail of a small portion of the exterior surface of the body whorl. *Left: Bulimulus (Puritanina) harribaueri*, new species. *Right: Bulimulus (Puritanina) montezuma* Dall. Both × 9.

of whorls, its generally broader outline, and the very distinctive sculpture, the granules being flatter, more irregular in shape, and finer (fig. 2). In a 10-mm. portion of the body whorl, three specimens of *harribaueri* possess 39, 38, and 40 rows of granules, respectively, whereas a series of *montezuma* in the United States National Museum possesses the following numbers of rows in the same area:

U.S.N.M. No. 8564 (lectotype)	22 rows
U.S.N.M. No. 190295	32 rows
U.S.N.M. No. 129287	24 rows
U.S.N.M. No. 129287	25 rows
U.S.N.M. No. 129287	27 rows
U.S.N.M. No. 129287	28 rows
U.S.N.M. No. 129287	30 rows
U.S.N.M. No. 126135	26 rows
U.S.N.M. No. 126135	27 rows
U.S.N.M. No. 126135	25 rows
U.S.N.M. No. 126135	29 rows
U.S.N.M. No. 190294	28 rows
U.S.N.M. No. 190294	32 rows
U.S.N.M. No. 190294	29 rows

These data indicate that specimens of *montezuma* from three different

localities persistently show a smaller number of rows than are found in *harribaueri*. The two *montezuma* specimens, which have as many as 32 rows, do not differ to the naked eye from other specimens of *montezuma*. The apparently larger number of rows in these is due to the fact that occasionally individual rows are split into several very narrow rows; these, however, do not detract from the generally coarser appearance of the surface.

The species *acholus* Mabille (1895) and *cosmicus* Mabille (1895) were not adequately described and remain *species inquirendae*. However, on the basis of Pilsbry's (1897, pp. 143–144) translations of the original descriptions, *harribaueri* differs from them by having seven instead of five whorls and by having the granules confined to the last two and one-half whorls, whereas apparently in Mabille's species the entire shell is so covered.

The three species most closely related to *harribaueri* (*montezuma*, *acholus*, and *cosmicus*) are all reported from the mountains of Baja California.

The new species was found close to the shore on sand dunes, where many more or less broken shells were also seen. Apparently this is a lowland species, related to the large shells of the inland mountains.

The paratypes differ from the holotype in outline, some tending to be narrower.

TABLE 1

MEASUREMENTS (IN MILLIMETERS) OF FOUR PARATYPES OF *Bulimulus* (*Puritanina*) *harribaueri*, NEW SPECIES

Height of Shell	Width of Shell	Height of Aperture	Width of Aperture
46.7	27.3	23.4	12.5
49.6	26.7	23.9	12.5
47.0	22.3	23.8	13.8
47.5	24.9	23.8	12.6

This striking bulimulid is named in honor of Mr. Harry J. Bauer, the co-sponsor of the Puritan-American Museum of Natural History Expedition.

Dall (1893a, p. 26) substituted the name *montezuma* for *proteus* Binney, not Broderip. The figure given by Binney (1869, p. 207, fig. 358) is from a specimen in the United States National Museum (No. 8564); this figure was copied by Dall (1893b, pl. 72, fig. 1). The specimen is

still in the United States National Museum collection and is here designated the lectotype of *Bulimulus montezuma* Dall, 1893.

Drymaeus trimarianus (Martens)

Otostomus trimarianus MARTENS, 1893, Biologia Centrali-Americana, p. 216, pl. 13, figs. 17, 17a. Tres Marías Islands.

Drymaeus trimarianus Martens, DALL, 1926, Proc. California Acad. Sci., ser. 4, vol. 15, p. 475.

RECORD: María Madre Island, Tres Marías Islands, 300 feet, near salt marshes; eight specimens, of which four were alive.

The present shells are bluish white; only two specimens show the axial series of elongated brownish spots on the penultimate whorl. Some specimens have a small pink area at the columella.

Orthalicus delphinus (Strebel)

Zebra delphinus form *nebulosus* STREBEL, 1909, Jahrb. Hamburgischen Wiss., Anst., vol. 26, suppl. 2, p. 31, pl. 3, figs. 35–36, 39–41, 47, 49–50.

Oxystyla delphinus, forma *nebulosa* Strebel, DALL, 1926, Proc. California Acad. Sci., ser. 4, vol. 15, p. 473. María Madre Island, Tres Marías.

Oxystyla delphinus forma *nesiotica* DALL, 1926, Proc. California Acad. Sci., ser. 4, vol. 15, p. 474, pl. 35, fig. 3. María Madre Island.

RECORDS: María Magdalena Island, Tres Marías; 11 specimens, of which seven were taken alive. María Madre Island, Tres Marías; 20 specimens, of which 18 were taken alive.

Some of the present shells conform to Strebel's species, as redefined by Dall (1926, p. 473). They have the slender form, the brown nuclear whorl, the white-edged, nearly straight pillar, and the coloration of his species. Color variation, as in most *Orthalicus*, is pronounced, and even in these comparatively small lots, more or less complete gradations can be arranged from the typical, thickly marked form to light, almost unmarked shells. This extreme color variation impels us to drop the form or varietal name *nebulosus* for these shells. Several of the shells in the two lots, both of the typically heavily marked variety as well as of the unmarked *nesiotica* form, bear the "pale yellowish, extremely thin periostracum" which Dall (1926, p. 474) thought was characteristic of his *nesiotica*. Many of the present shells bear more than a single varical marking, some having as many as three or four. It appears that in the taxonomically very difficult genus *Orthalicus*, the number of these varical markings is not constant or diagnostic.

Dall (1926, p. 474) thought this species to have been artificially introduced in the Tres Marías Islands. That this introduction included more than one form of *Orthalicus* seems to be indicated by the variation

of shape, as several of the shells are decidedly more ovate than typical *delphinus*.

Orthalicus appears to have a monotypic, polymorphous species, with many easily hybridizing variational populations. In many cases individual shells are not easily determined, and if a name is finally given, it is as much a despairing guess as a scientific decision. Perhaps that is why the *Orthalicus* of the Tres Marías Islands were called *undata* Bruguière by Stearns (1894, p. 162), *princeps* Broderip by Pilsbry (1899, p. 113), and *melanocheilus* Valenciennes by Pilsbry (1931, p. 82).

Pilsbry (1899, p. 122) states, regarding his use of *melanocheilus* Valenciennes, "It should be said . . . that the selection of the northern Mexican form as the true *melanochilus* is wholly arbitrary." Under these circumstances it seems advisable to retain the form name *nesiotica* Dall for the unmarked specimens.

The reasons for the use of *Orthalicus* Beck, 1837, rather than *Oxystyla* Schlueter, 1838, are set forth by Rehder (1945).

FAMILY OLEACINIDAE

Euglandina mazatlanica (Martens)

Glandina mazatlanica MARTENS, 1891, Biologia Centrali-Americana, p. 65, pl. 4, figs. 2, 2a, 3. Mazatlan; Tres Marías Islands.

Euglandina mazatlanica Martens, PILSBRY, 1908, Manual of conchology, ser. 2, vol. 19, p. 196, pl. 23, figs. 39, 40.

Euglandina mariana DALL, 1926, Proc. California Acad. Sci., ser. 4, vol. 15, p. 470, pl. 35, fig. 4 (not pl. 34, fig. 4, as in Pilsbry, 1913). María Magdalena, Tres Marías Islands.

Euglandina mariana DALL, PILSBRY, 1931, Nautilus, vol. 44, p. 83.

RECORD: María Magdalena Island, Tres Marías Islands, under rocks at plus or minus 300 feet elevation; three live specimens.

This species has frequently been taken in the Tres Marías. There is no reason to dispute Pilsbry's synonymizing of *mariana* Dall with this species (1931, p. 83).

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CORRECTION

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On page 14, insert between line 22 and line 23 the following:

STEARNS, R. E. C.

(The 1937 reference belongs to Smith and England and the 1894 reference belongs to Stearns.)